the high voltage transformer HVT, and the magnetron(not shown) connected to the secondary coil T2 of the transformer HVT is driven.

Further, the first and second transistors 50 and 51 are alternately switched on in association with the alternate switching-on operations of the first and second field effect transistors FET1 and FET2.

The operational amplifier 52 inputs through the non-inverting terminal, amplifies, and outputs a resultant voltage formed in the emitter electrode of the first and second transistors 50 and 51, and the comparator 54 built in the pulse driving unit VFC2 compares a voltage signal outputted from the operational amplifier 52 with the reference voltage produced by the voltage-dividing resistors R12 and R13, and generates a comparison result signal.

During the operations, if an excessive current is applied to the high voltage transformer HVT, the voltages of the emitter electrodes of the first and second transistors 50 and 51 are increased, so that the comparator 54 outputs a signal of a high level.

If the signal of a high level corresponding to the excessive current detecting signal is inputted from the comparator 54, the pulse driving unit VFC2 stops the outputs of the first and second pulse signals from the first and second pulse output terminals OUT1 and OUT2, and continuously generates a feedback control signal through the feedback terminal FB. Therefore, the third transistor 53 is continuously turned on with an input of the feedback control signal, and the comparator 54 continuously outputs the excessive voltage detecting signal by the feedback voltage applied in correspondence with the excessive current detection through the diode D1.

As a result, the first and second field effect transistors FET1 and FET2 maintains the turn-off states thereof, so that the driving of the magnetron is stopped. Accordingly, related circuit components including the first and second field effect transistors FET1 and FET2 are protected from an excessive current.

Hereinafter, the driving circuit of a DC microwave oven according to the third embodiment of the present invention will be described with reference to FIG. 3.

The components having the same functions as those in the previous drawing will be indicated as the same reference numerals, and not be described in detail.

Referring to FIG. 3, the driving circuit has first and second monitor switches MSW11 and MSW22, first and second transistors 50 and 51, an operational amplifier 52, a third transistor 53, a diode D1, a pulse driving unit VFC2, and a comparator 54 built in the pulse driving unit VFC2.

The first switching contacts N11 and N21 of the first and second monitor switches MSW11 and MSW22 as a switch monitor unit are commonly connected to the positive terminal of the DC power supply DC through the fuse FUSE1, and the second switching contacts N12 and N22 are connected to the first and second transistors 50 and 51 which are elements of an excessive current detecting/maintaining unit.

Here, the excessive current detecting/maintaining unit includes the excessive current detecting unit and the excessive current maintaining unit as described above.

The first and second monitor switches MSW11 and MSW22 each having three terminals selects either of a first loop passing from the DC power supply DC to the fuse FUSE1, or of a second loop passing the excessive current detecting/maintaining unit by

switching operations. That is, the fixed terminals of the first and second monitor switches MSW11 and MSW22 are connected on a current supply path connecting the first and second field effect transistors FET1 and FET2 of an inverter unit and the high voltage transformer HVT, the first contact N11 selectively switched with the fixed terminal is connected to the DC power supply through the fuse FUSE1, and the second contact N12 selectively switched with the fixed terminal is connected to a unit for carrying out the detection of an excessive current when the cooking chamber door is closed.

The first and second monitor switches MSW11 and MSW22 are operated with the cooking chamber door, to thereby be connected to the first switching contacts N11 and N21 if the cooking chamber door is opened, and be connected to the second switching contacts N12 and N22 if the cooking chamber door is closed.

In the meantime, if the primary interlock switch PSW and the secondary interlock switch SSW are short-circuited by a malfunction when the cooking chamber door is opened, the fuse FUSE1 is opened by the first and second monitor switches MSW11 and MSW22 connected the first switching contacts N11 and N21.

The base electrodes of the first and second transistors 50 and 51 are connected to the first and second pulse output terminals OUT1 and OUT2 of the pulse driving unit VFC2.

The collector electrodes of the first and second transistors 50 and 51 are connected to the second switching contacts N12 and N22 of the first and second monitor switches MSW11 and MSW22, and the emitter electrodes thereof are connected to the earth through the resistors R7 and R8.